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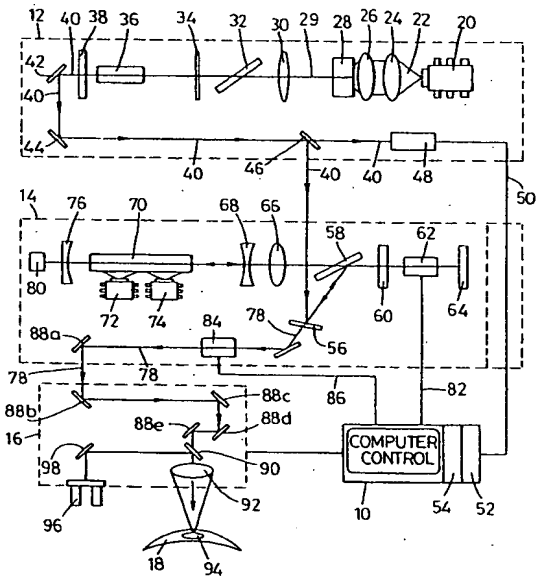
(54) Variable repetition rate picosecond laser.

(57) A system for varying the pulse repetition rate of a pulsed laser beam includes a computer (10) which is electronically connected to the system's oscillator (12) and regenerative amplifier (14). Specifically, the computer is electronically connected to the oscillator to create a first signal (50) which is indicative of a first pulse repetition rate for the laser beam, as it is initially generated by the oscillator. The computer.then selectively divides the initial first pulse repetition rate by an integer to create a second signal (82) which is indicative of a second pulse repetition rate. The second repetition rate is variable according to the dividing integer and is substantially lower than the first repetition rate. The Pockels cell (62) of the regenerative amplifier is then activated by the computer with the second signal to admit pulses from the oscillator laser beam into the regenerative amplifier at the second pulse repetition rate. Thus, the output laser beam (78) from the regenerative amplifier comprises amplified pulses having a variable second pulse repetition rate. The system may also include an attenuator (84) which is controlled by the computer to establish the energy level of pulses in the output laser beam.



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